FORM PTO-1390 (REV 10-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C.371

ATTORNEY'S DOCKET NUMBER: **FHW-100US**

U.S. APPLICATION NO. (If known, see 37 CFR 1.5): **10/049800**

INTERNATIONAL APPLICATION	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/GB00/03117	**14 August 2000 (14.08.00)**	**17 August 1999 (17.08.99)**

TITLE OF INVENTION: **PORTAL IMAGING DEVICE**

APPLICANT(S) FOR DO/EO/US: **Robert Stephen COOKE et al.**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C.371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☐ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☐ is attached hereto (required only if not communicated by the International Bureau).
   b. ☒ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). **(unexecuted) (4 Sheets);**
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98; **(2 sheets) with Form PTO-1449 (1 sheet);**
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included
13. ☒ A FIRST preliminary amendment **(4 sheets) (along with version of markings to show changes (2 sheets));**
    ☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: **PCT International Published Application (WO 01/12066 A2) (without International Search Report attached) (16 sheets); PCT International Published Application (WO 01/12066 A3) (with International Search Report attached) (5 sheets); The International Preliminary Examination Report (5 sheets); Check for $650 based on small entity status; Certificate of First Class Mailing (1 sheet); and Return Postcard.**

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NO.
10/049800	PCT/GB00/03117	FHW-100US

17. ☒ The following fees are submitted:

	CALCULATIONS PTO USE ONLY	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) .(a/o November 1, 2000):		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.....**$1040**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$890**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.455(a)(2)) paid to USPTO **$740**		
International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4).....**$710**		
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4).....**$100**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$890.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$130.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	**16**-20 =	**0**	X **$18.00**	$	
Independent claims	**1**-3 =	**0**	X **$84.00**	$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **280.00**	$280.00	
TOTAL OF ABOVE CALCULATIONS =				$1300.00	
☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by ½.				$	
SUBTOTAL =				$650.00	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				$	
TOTAL NATIONAL FEE =				$	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$	
TOTAL FEES ENCLOSED =				$650.00	
				Amount to be: refunded	$
				charged	

a. ☒ Check in the amount of $ 650.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **12-0080**. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Anthony A. Laurentano, Esq.
LAHIVE & COCKFIELD, LLP
28 State Street
Boston, Massachusetts 02109
United States of America
(617)227-7400
Date: 15 February 2002

SIGNATURE

Anthony A. Laurentano
NAME

38,220
REGISTRATION NUMBER

(Atty. Docket No.: FHW-100US)

IN THE UNITED STATES PATENT DESIGNATED OFFICE (DO/US)
(National Phase of International Appln.: PCT/GB00/03117,
Publication No. WO 01/12066 A2)

In re the
application of: **Robert Stephen COOKE, et al.**

International Application No.: **PCT/GB00/03117**

International Filing Date: **14 August 2000**

U.S. Serial No.: **Not yet assigned**

Filed: **Herewith**

For: **PORTAL IMAGING DEVICE**

Attorney Docket No.: **FHW-100US**

BOX PCT
Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Preliminary to examination of the above-referenced patent application, please amend the above-titled International patent application as follows:

In the Claims:

Please amend claims 1, 4-12 and 14 as follows.

Please cancel claims 13, 15 and 16 and add new claims 17 and 18 as follows:

1. (Amended) Apparatus for positioning an imaging device relative to the gantry of a radiation therapy apparatus, comprising a mounting device for mounting the

apparatus on a surface of the gantry, a telescopically extendable arm pivotally connected to the mounting device, and a holder for holding the imaging device, wherein the holder is connected to a distal portion of the telescopically extendable arm.

4. (Amended) Apparatus as claimed in claim 2 wherein the elongate elements do not share a common central axis.

5. (Amended) Apparatus as claimed in claim 1 wherein the arm is pivotally mounted substantially about its centre of mass.

6. (Amended) Apparatus as claimed in claim 1 wherein the arm is pivotally mounted substantially about the centre of mass of the arm and the imaging device.

7. (Amended) Apparatus as claimed in claim 1 wherein the holder is slidably mounted so as to slide along the extendable arm.

8. (Amended) Apparatus as claimed in claim 1 wherein the holder comprises means for sliding the imaging device along an axis perpendicular to a longitudinal axis of the extendable arm.

9. (Amended) Apparatus as claimed in claim 1 wherein the holder is detachably coupled to one of the imaging device and the extendable arm.

10. (Amended) Apparatus as claimed in claim 1 wherein the holder comprises means for locking the position of the imaging device.

11. (Amended) Apparatus as claimed in claim 1 further comprising means for rotating the imaging device about an axis parallel to a longitudinal axis of the extendable arm.

12. (Amended) Apparatus as claimed in claim 1 comprising a counterbalancing means for holding the extendable arm under gravity in any given angular position relative to the surface of the gantry.

14. (Amended) Apparatus as claimed in claim 1 further comprising means for activating the apparatus.

Add new claims 17 and 18 as follows:

17. (New) A radiation therapy apparatus comprising a gantry having mounted thereon apparatus for positioning an imaging device substantially as described in claim 1.

18. (New) A radiation therapy apparatus as claimed in claim 14 comprising a plurality of apparatus as claimed in claim 1.

REMARKS

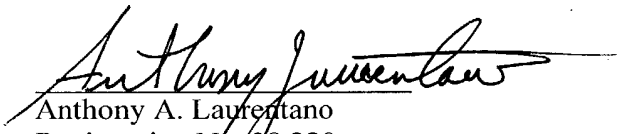
Preliminary to examination of this application, Applicant amends claims 1, 4-12 and 14 to remove multiple dependencies, to provide proper antecedent basis, and to address other matters of form. Applicant cancels claims 13, 15 and 16 and adds new claims 17 and 18. The foregoing amendments are not related to issues of patentability, and introduce no new matter.

Entry of the foregoing Preliminary Amendment is respectfully in order and requested.

If there are any questions regarding the amendments to the application, we invite the Examiner to call Applicants' representative at the telephone number below.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP



Anthony A. Laurentano
Registration No. 38,220
Attorney for Applicants

28 State Street
Boston, MA 02109
(617) 227-7400
Date: February 15, 2002

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend claims 1, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 14 as follows.

Please cancel claims 13, 15 and 16.

1. (Amended) Apparatus for positioning an imaging device relative to the gantry of a radiation therapy apparatus, [comprises] comprising a mounting device for mounting the apparatus on a surface of the gantry [surface], a telescopically extendable arm pivotally connected to the mounting device, and a holder for holding [an] the imaging device, wherein the holder [being] is connected to [the] a distal portion of the telescopically extendable arm.

4. (Amended) Apparatus as claimed in claim 2 [or claim 3] wherein the elongate elements do not share a common central axis.

5. (Amended) Apparatus as claimed in claim 1 [any preceding claim] wherein the arm is pivotally mounted substantially about its centre of mass.

6. (Amended) Apparatus as claimed in claim 1 [any one of claims 1 to 4] wherein the arm is pivotally mounted substantially about the centre of mass of the arm and the imaging device [assembly].

7. (Amended) Apparatus as claimed in claim 1 [any preceding claim] wherein the holder is slidably mounted so as to slide along the extendable arm.

8. (Amended) Apparatus as claimed in claim 1 [any preceding claim] wherein the holder comprises means for sliding the [image] imaging device along an axis perpendicular to a [the] longitudinal axis of the extendable arm.

9. (Amended) Apparatus as claimed in claim 1 [any preceding claim] wherein the holder is detachably coupled to one of [detachable from] the imaging device and [/or] the extendable arm.

10. (Amended) Apparatus as claimed in claim 1 [any preceding claim] wherein the holder comprises means for locking the position of the imaging device.

11. (Amended) Apparatus as claimed in claim 1 [any preceding claim] further comprising means for rotating the imaging device about an axis parallel to a longitudinal axis of the extendable arm.

12. (Amended) Apparatus as claimed in claim 1 [any preceding claim] comprising a counterbalancing means for holding the extendable arm under gravity in any given angular position relative to the surface of the gantry.

14. (Amended) Apparatus as claimed in claim 1 further comprising means for activating the apparatus [any preceding claim wherein the apparatus is actuated by mechanical or electro-mechanical means].

PORTAL IMAGING DEVICE

This invention relates to radiation treatment apparatus, in particular portal imaging systems comprising a rotatable gantry, supported by a stand, a radiation emitting head coupled to the gantry and an imaging device for providing, in visual form, a representation of the radiation beam emitted from the head after it has passed through the object under treatment. In particular the invention relates to apparatus for mounting the imaging device on the gantry of the radiation treatment apparatus.

European Patent No. EP 0541717 identifies a problem with portal imaging devices, that being that in order for the lightweight boxes to cover a reasonable radiation field size, the construction of the detector enclosure has to be very bulky, this poses an inconvenience during patient set up and occupies space in the treatment room when not being used. Practical use of such devices has thus, historically been quite limited. That Patent goes on to describe an apparatus for mounting the imaging device to the gantry of a radiation treatment apparatus in which the imaging device is fixed to the end of a telescopically extendable holding means the holding means being arranged such that when not in use the majority of the holding apparatus and imaging device is retracted into the body of the gantry.

Whilst this arrangement provides a convenient means of storing the imaging device and associated mounting apparatus, the mounting apparatus is integral with the gantry of the radiation treatment apparatus and must therefore be built into the apparatus during manufacture. Additional disadvantages of this arrangement arise where parts of the mounting apparatus require repair maintenance or replacement. The arrangement also requires that space be found in the body of an already cumbersome piece of equipment to locate the collapsed mounting means.

Alternative mounting apparatus have been proposed which are surface mountable on the gantry of the radiation treatment apparatus. These arrangements

comprise an arm for holding the imaging device which is collapsible about one or more pivots. The arm itself is pivotally mounted on the surface of the gantry of the treatment apparatus and the imaging device is pivotally connected to the distal end of the arm the arrangement being such that the entire assembly can be folded flat to sit flush against the surface of the gantry.

In order to produce an accurate visual representation of the image it is essential that the imaging device is positioned and maintained in position accurately at a predetermined distance from the radiation emitting head. Thus, foldable mounting apparatus such as that described, is extremely difficult and expensive to engineer in practice and not always as accurate as may be desired.

It is therefore an object of the present invention to provide a mounting apparatus for mounting the imaging device on the gantry which alleviates some or all of the aforementioned disadvantages associated with the previously described mounting apparatus.

In accordance with the present invention there is provided apparatus for positioning an imaging device relative to the gantry of a radiation therapy apparatus comprising:

a mounting device for mounting the apparatus onto the gantry surface, a telescopically extendable arm pivotally connected to the mounting device, and a holder for holding an imaging device, the holder being connected to the telescopically extendable arm.

Conveniently, the arm may comprise two or more elongate elements arranged in slidable communication with each other. Optionally, the slidable communication is provided by means of one or more linear bearings located between the elongate elements. The elongate elements may optionally be arranged to slide one inside another or alternatively side by side. To provide optimum stability, the arm is preferably pivotally mounted substantially about its centre of mass. Most preferably the arm is

pivotally mounted substantially about the centre of mass of the arm and imaging device assembly.

Optionally, the holder is slidably mounted to slide along the extendable arm. This arrangement provides for more compact retraction of the arm and image device assembly as well as more freedom in positioning the image device relative to the radiation head. The holder may further comprise means for permitting linear motion of the imager device along an axis perpendicular to the longitudinal axis of the extendable arm. This arrangement provides a further degree of freedom in positioning the imaging device with respect to the radiation emitting head and when provided along with a slidably mounted holder provides for the imaging device to be easily locatable about a relatively large area.

As a further option, the apparatus may be provided with means for moving the image device radially along the surface of the gantry, toward and away from its centre point. Such means may comprise, for example, a slider on the surface of the gantry or a pivot and linkage system connecting the components of the apparatus.

Preferably the holder is detachable from the imaging device, permitting the imaging device to be removed for storage or replacement. Preferably, the holder has means for locking the position of the imaging device when the device is located within the holder.

In order to permit a further degree of freedom in positioning the imaging device, the holder may optionally comprise a rotating means for rotating the imaging device about an axis parallel to the longitudinal axis of the extending arm.

Preferably the apparatus is provided with counterbalancing means such that the arm and/or the arm and image device assembly can be held under gravity in any given angular position relative to the surface of the gantry.

Optionally, the apparatus may be activated by mechanical means, in particular,

where the apparatus is provided with counterbalancing means, the sliding and rotational movements may be actuated by a simple lower power means.

Thus it can be seen that the invention provides a mechanically simple and inexpensive means of positioning an imaging device relative to the gantry of a radiation therapy apparatus. As the arrangement is surface mountable it can be fixed to existing equipment and can easily be maintained repaired or replaced. Apparatus according to the invention will operate at any given positional rotation of the gantry. Thus, two or more apparatus according to the present invention may be provided on any single given gantry of the radiation therapy apparatus. For example, two such apparatus may be disposed at two positions about the gantry of a radiation therapy apparatus a first position being commensurate with a megavolt measurement of the radiation image and the second position being commensurate with a kilovolt measurement of the radiation image. In this arrangement where the holder of the apparatus is provided to be detachable from the imaging device, a single imaging device may be transferred between the two apparatus according to the present invention to obtain both megavolt and kilovolt measurements.

A particular advantage of this arrangement is provided where the pivot about which the arm is mounted is offset from the end of the arm, this enables the arrangement to be self counter balancing when retracted and minimises any movement about the arm when extended. The inherent stability of this arrangement means that the forces to be overcome on extension and retraction are primarily frictional or inertial and can easily be overcome either manually or with simple electro-mechanical actuation devices.

It is also to be appreciated that the small framed lightweight arrangement is easy to manoeuvre around even when partially stowed.

The invention will now be further described by way of example with reference to the Figures, in which:-

Figure 1 shows an apparatus for positioning an imaging device relative to the gantry of radiation therapy apparatus substantially as described in European Patent EP 0541717;

Figure 2 shows a schematic of the surface mountable folding apparatus also described above;

Figure 3 shows an embodiment of the present invention in its fully extended position in both a perspective and side view;

Figure 4 shows the embodiment of Figure 3 in a partially retracted position;

Figure 5 shows the embodiment of Figure 3 with the arms and imaging device fully retracted;

Figure 6 shows how the fully retracted arm and imaging device rotate about a centre of mass to be stowed flat against the gantry surface;

Figure 7 illustrates the embodiment of Figure 3 in a fully stowed and retracted position in both a perspective and side view;

Figure 8 shows how the embodiment can operate at an alternative gantry rotation.

In Figure 1 a gantry 1 of a radiation therapy apparatus is provided with a radiation head 2 and diametrically opposed to the radiation head is an imaging device 3 connected to a telescopic arm 4, 5 which is retractable into a cavity 6 within the gantry 1. The arm comprises two concentrically aligned tubes 4, 5 slidable one within the other along an axis A. Imaging device 3 is pivotally mounted about a point 7 to the distal end of tube 4. The arrangement is shown in fully extended position, but it can be seen that retraction of tube 4 along tube 5 into cavity 6 and pivoting of imaging device 3 about pivot 7 allows the assembly to be retracted and stowed in a position

flush with the surface of the gantry 1 of the radiation therapy apparatus.

In Figure 2 the gantry 1 of a radiation therapy apparatus has pivotally connected thereto a jointed arm 8, 9 which is further connected to an imaging device 3 about a pivotal joint 10. Figure 2a shows the arrangement partially extended and Figure 2b shows the arrangement fully retracted.

In Figure 3, a gantry 1 of a radiation therapy apparatus has fixed thereto a mounting plate 11 to which, by means of pivot 12, telescopically extending arm 13, 14 is attached. The telescopically extending arm comprises two tubes, 13 and 14, which in this embodiment are of substantially rectangular cross-section but may be of any other suitable cross-section arranged to slide side by side by means of linear bearing 15. Slidably connected to the distal portion 14 of the slidable arm is an imaging device holder 17 which is slidable along linear bearing 16. Mounted on the holder 17 is an imaging device 3. Imaging device 3 is slidable with respect to holder 17 by means of linear bearing 18.

As can be seen from the Figure the imaging device 3 is free to move along two perpendicular axes defined by linear bearings 16 and 18.

In Figure 4, the distal portion 14 of the extendable arm 13, 14 has been moved towards the surface of gantry 1 by means of linear bearing 15. Movement of the slidable arm 14 in linear bearing 15 together with movement of linear bearing 18 of holder 17 allows the imaging device 3 to be locatable about a relatively large viewing area.

In Figure 5 holder 17 has been moved from a relatively distal to a relatively proximal position on the extendable arm 13, 14 drawing the imaging device 3 closer to the surface of the gantry 1. This partially retracted position provides more convenient access to the patient during treatment.

Figure 6 illustrates how the apparatus, fully retracted as shown in Figure 5, can

be pivoted about pivot 12 towards a stowing position substantially flush with the surface of gantry 1.

Finally, Figure 7 illustrates the apparatus in fully stowed position.

The foregoing describes only one embodiment of the invention to aid understanding and is not intended to be in any way limiting from the true scope of the invention as defined in the appended claims.

CLAIMS

1. Apparatus for positioning an imaging device relative to the gantry of a radiation therapy apparatus comprises a mounting device for mounting the apparatus on the gantry surface, a telescopically extendable arm pivotally connected to the mounting device and a holder for holding an imaging device, the holder being connected to the distal portion of the telescopically extendable arm.

2. Apparatus as claimed in claim 1 wherein the arm comprises two or more elongate elements in slidable communication with each other.

3. Apparatus as claimed in claim 2 wherein the slidable communication is provided by one or more linear bearings between the elongate elements.

4. Apparatus as claimed in claim 2 or claim 3 wherein the elongate elements do not share a common central axis.

5. Apparatus as claimed in any preceding claim wherein the arm is pivotally mounted substantially about its centre of mass.

6. Apparatus as claimed in any one of claims 1 to 4 wherein the arm is pivotally mounted substantially about the centre of mass of the arm and imaging device assembly.

7. Apparatus as claimed in any preceding claim wherein the holder is slidably mounted to slide along the extendable arm.

8. Apparatus as claimed in any preceding claim wherein the holder comprises means for sliding the image device along an axis perpendicular to the longitudinal axis of the extendable arm.

9. Apparatus as claimed in any preceding claim wherein the holder is detachable

from the imaging device and/or the extendable arm.

10. Apparatus as claimed in any preceding claim wherein the holder comprises means for locking the position of the imaging device.

11. Apparatus as claimed in any preceding claim further comprising means for rotating the imaging device about an axis parallel to longitudinal axis of the extendable arm.

12. Apparatus as claimed in any preceding claim comprising a counterbalancing means for holding the extendable arm under gravity in any given angular position relative to the surface of the gantry.

13. Apparatus substantially as described herein with reference to Figures 2 to 8.

14. Apparatus as claimed in any preceding claim wherein the apparatus is actuated by mechanical or electro-mechanical means.

15. A radiation therapy apparatus comprising apparatus for positioning an imaging device substantially as described in any preceding claim.

16. A radiation therapy apparatus comprising two or more apparatus as claimed in any one of claims 1 to 13.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(71) Applicant *(for all designated States except US)*: **ELEKTA ONCOLOGY SYSTEMS LTD.** [GB/GB]; Linac House, Fleming Way, Crawley, West Sussex RH10 2RR (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **COOKE, Robert, Stephen** [GB/GB]; Twydale Cottage, The Street, Ewhurst, Surrey GU6 7QA (GB). **FRYER, Christopher, John** [GB/GB]; 31 Barnscroft Way, Droitwich, Worcestershire WR9 0BA (GB). **HARWOOD, William, Richard** [GB/GB]; 26 Orchard Way, Hurstpierpoint, Hassocks, West Sussex BN6 9UB (GB). **PERKINS, Clifford, William** [GB/GB]; 8 Goodwood Close, Furnace Green, Crawley, West Sussex RH10 6NG (GB). **STREAMER, Ralph, Peter** [GB/GB]; 2 Copse Close, Horsham, West Sussex RH12 5RS (GB).

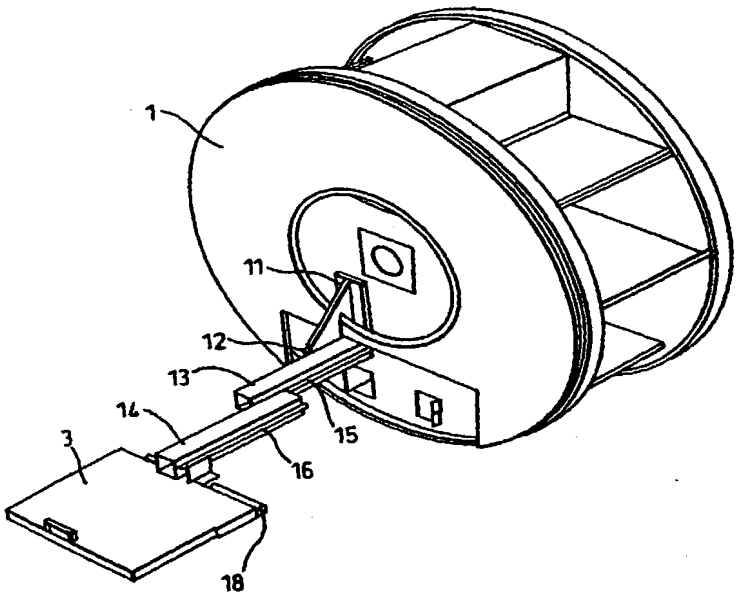
(74) Agents: **MADDISON, Victoria, Jayne** et al.; Fry Heath & Spence, The Old College, 53 High Street, Horley, Surrey RH6 7BN (GB).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: PORTAL IMAGING DEVICE



(57) Abstract: A surface mountable apparatus is provided for positioning an imaging device relative to the gantry of a radiation therapy apparatus. The apparatus comprises a mounting device for mounting the apparatus on the gantry surface a telescopically extendable arm which is pivotally connected to the mounting device and a holder for holding an imaging device the holder being connected to the distal portion of the telescopically extendable arm. The apparatus is mechanically simple and relatively inexpensive to manufacture. The apparatus when assembled to a radiation therapy apparatus provides an accurate and lightweight means of positioning and stowing an imaging device.

WO 01/12066 A2

WO 01/12066 PCT/GB00/03117

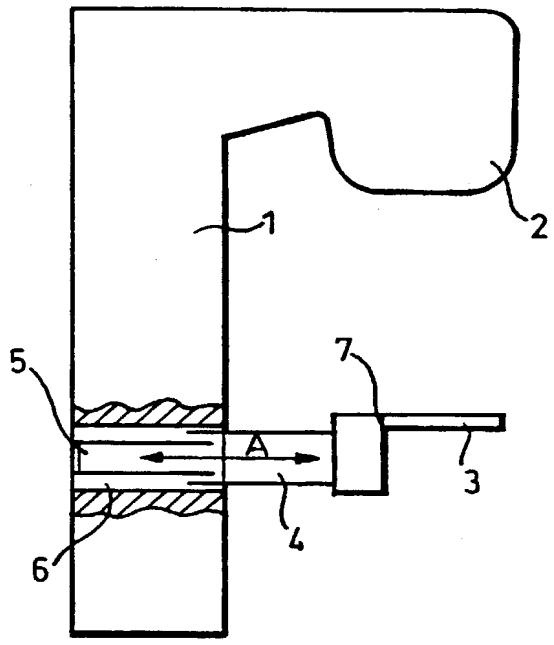


Fig.1.

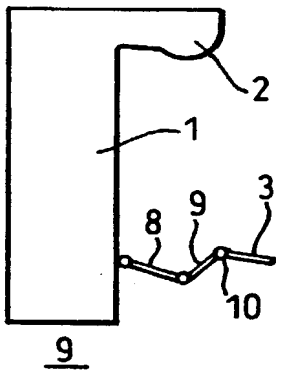


Fig.2a.

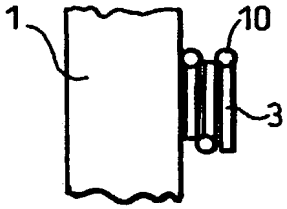


Fig.2b.

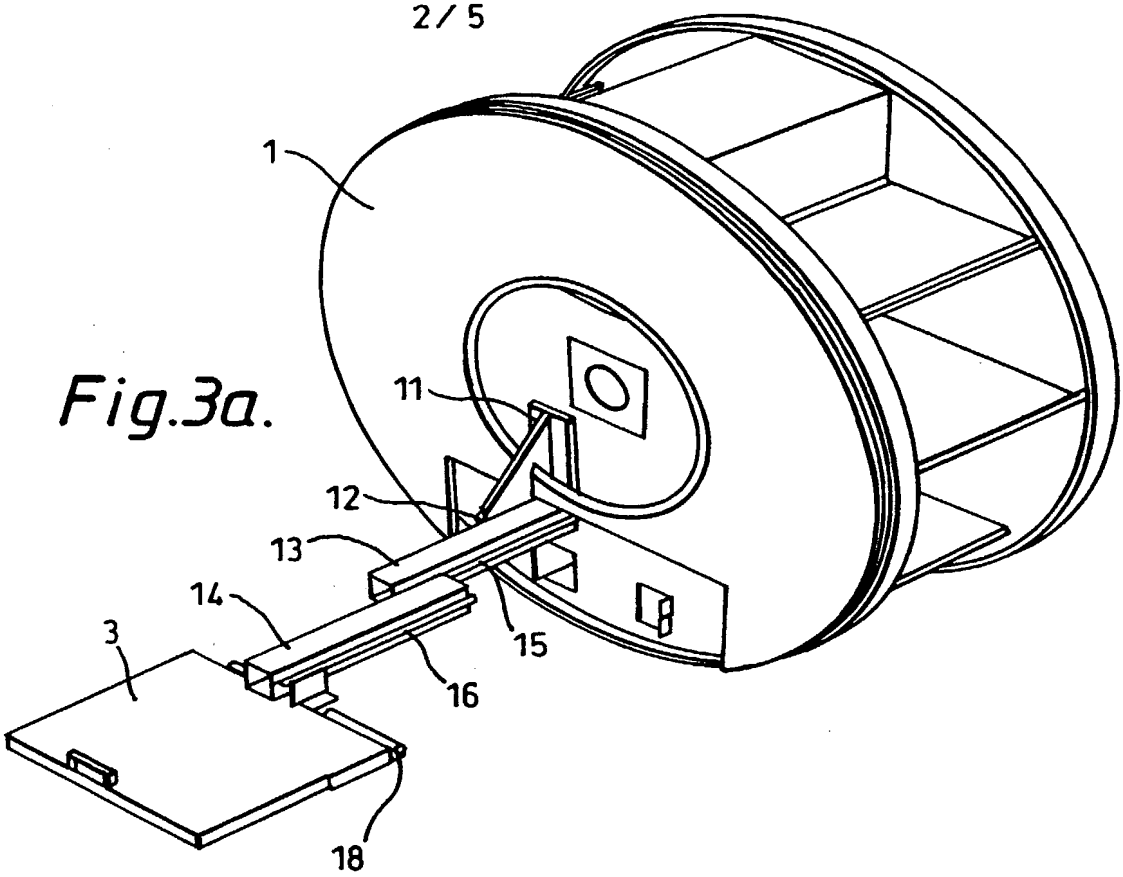


Fig.3a.

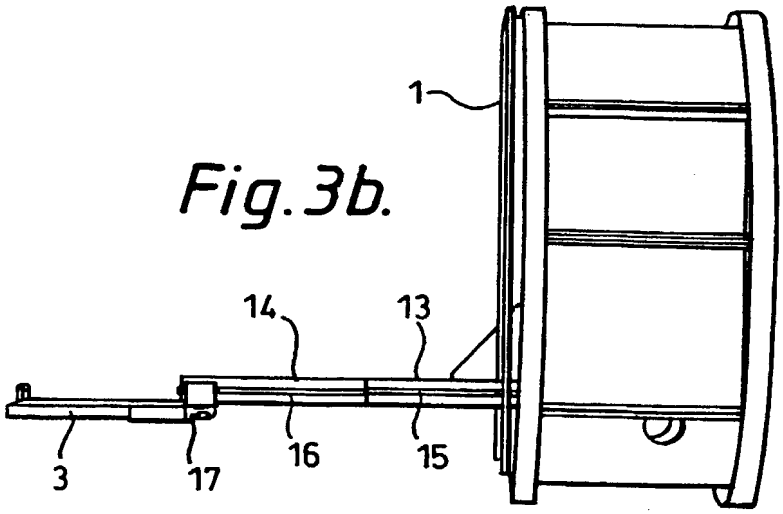


Fig.3b.

Fig.4.

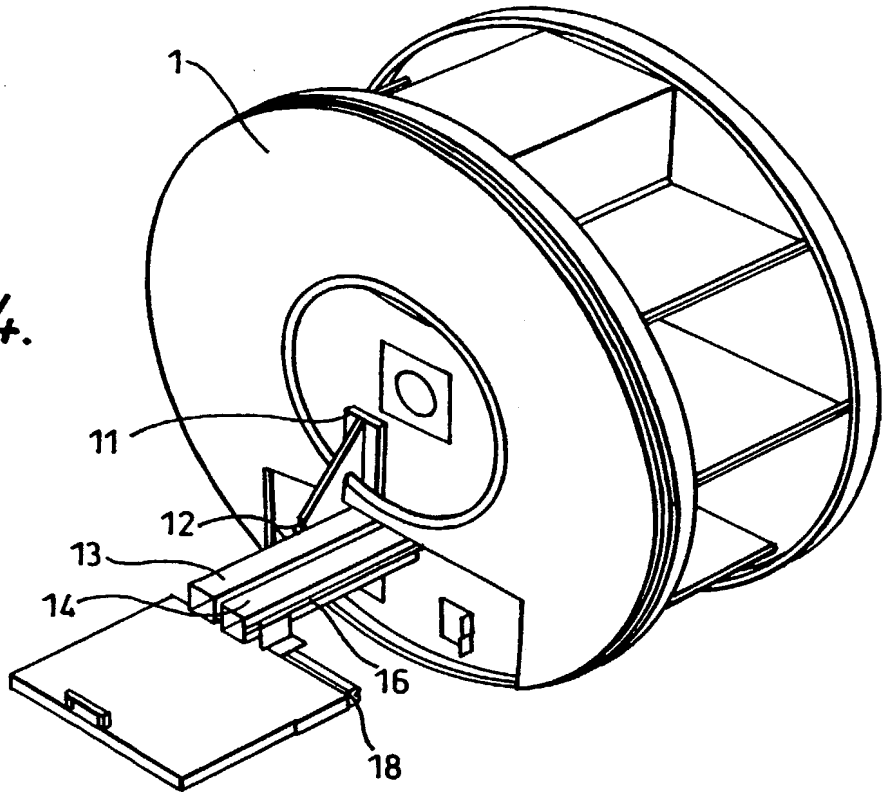
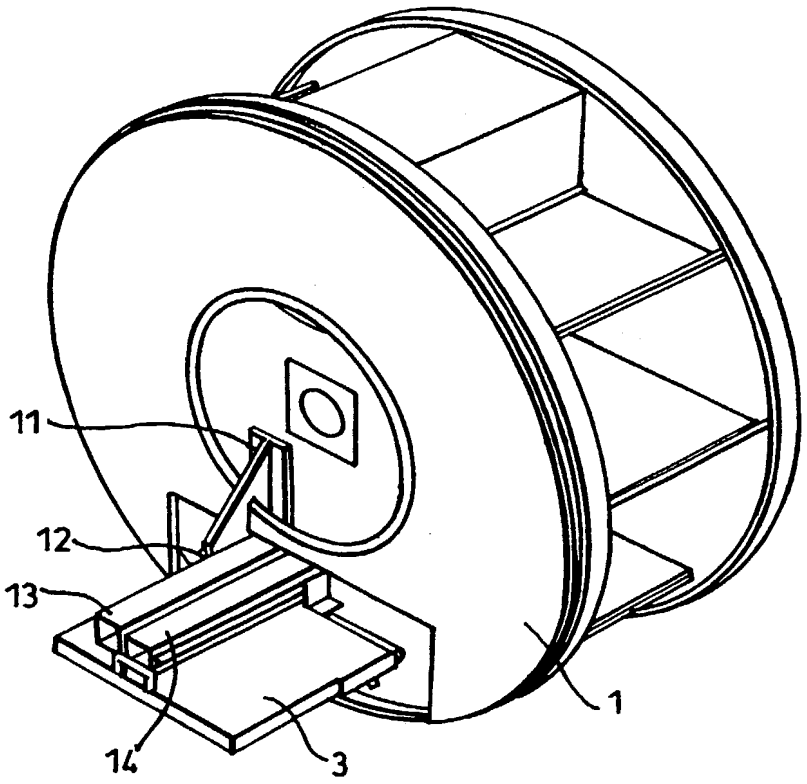


Fig.5.



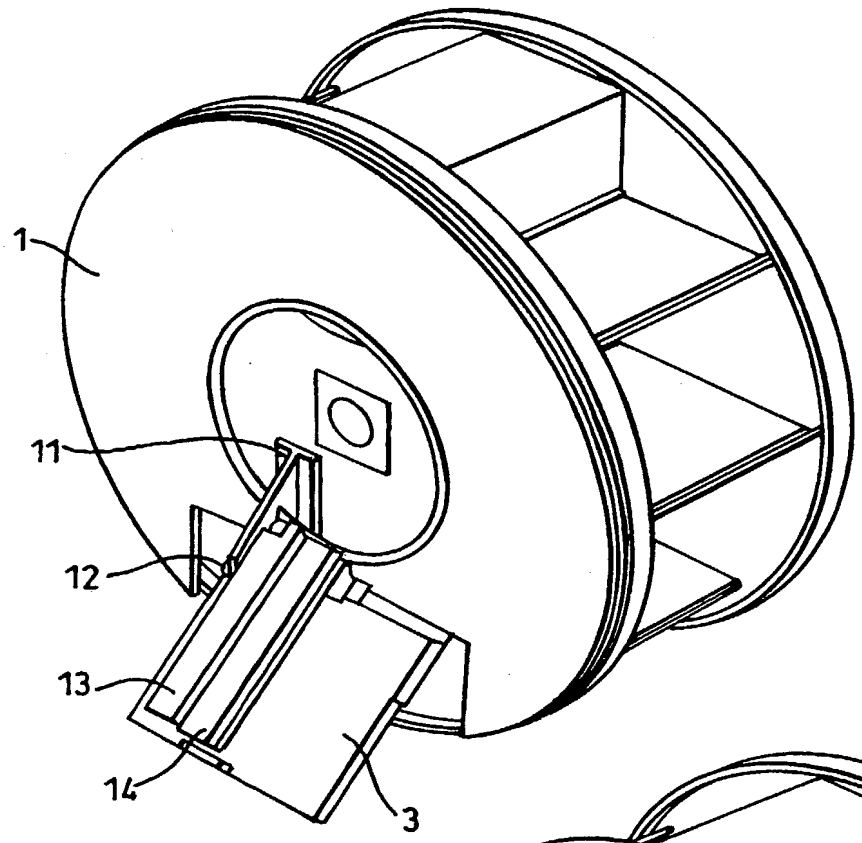


Fig.6.

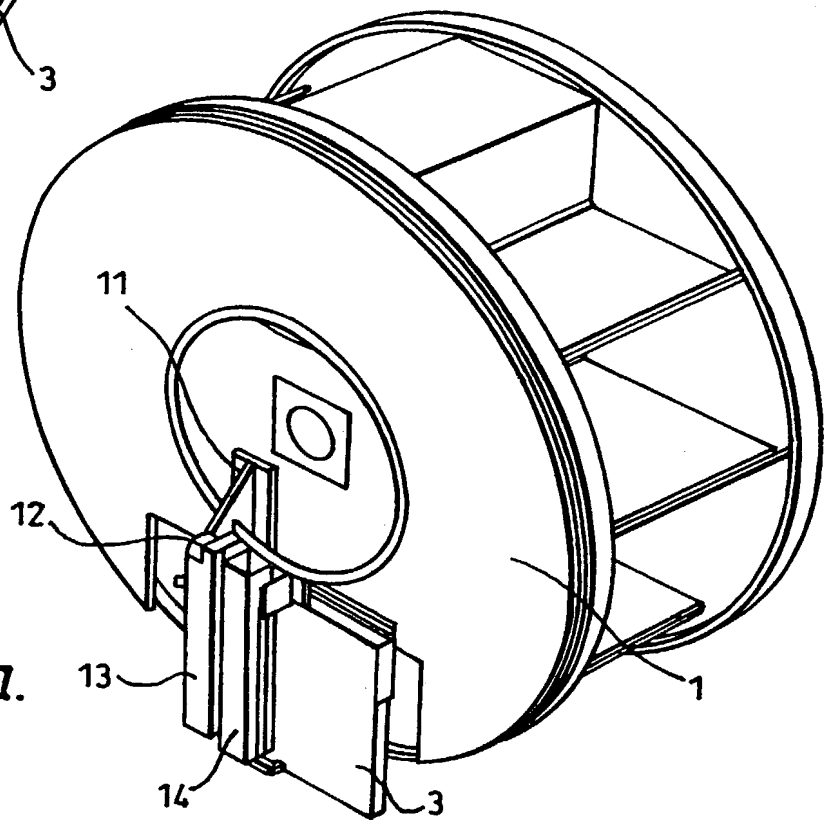


Fig.7a.

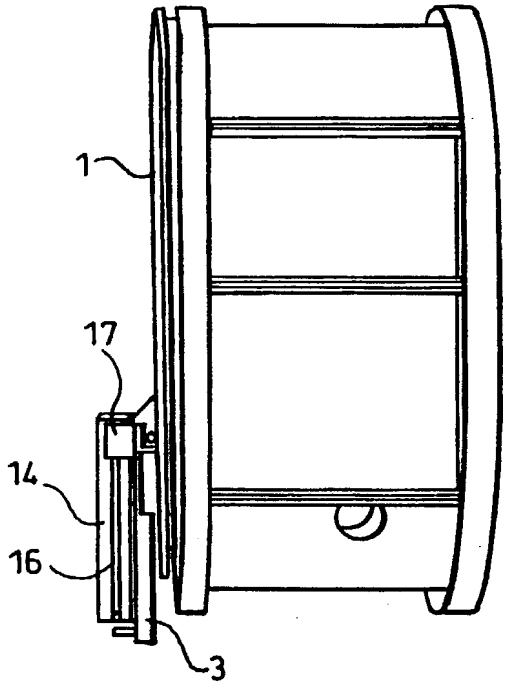


Fig.7b.

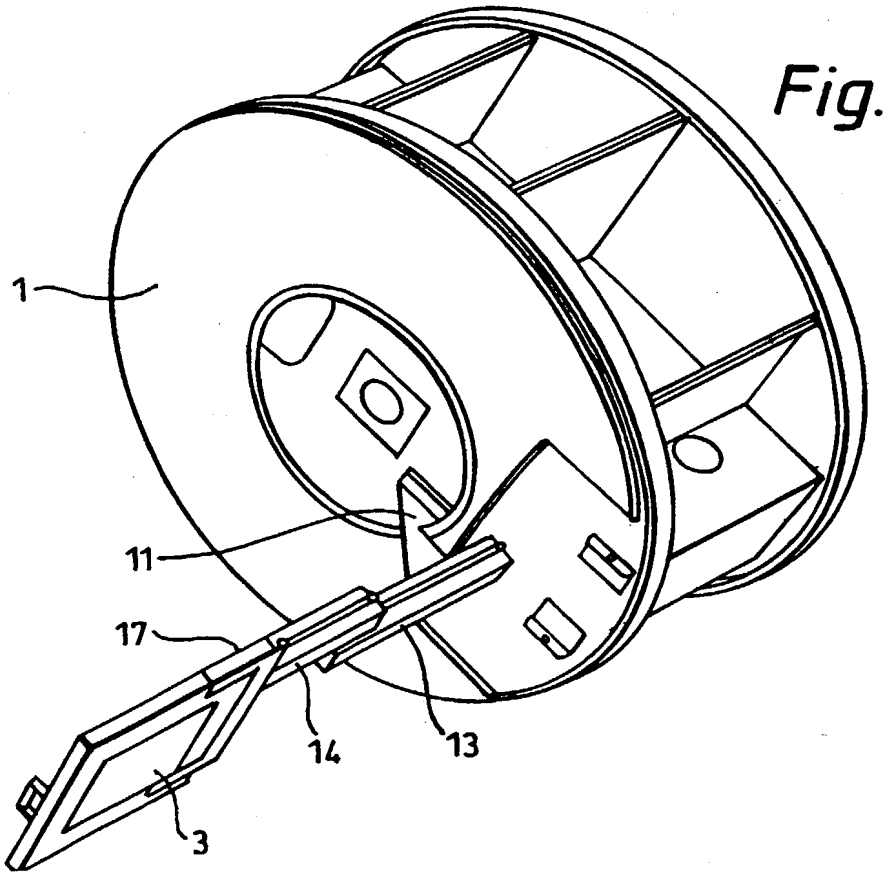


Fig.8.

DECLARATION, PETITION AND POWER OF ATTORNEY FOR PATENT APPLICATION

(Check one):

☐ Declaration Submitted with Initial Filing

☒ Declaration Submitted after Initial Filing

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PORTAL IMAGING DEVICE

the specification of which (check one):

☐ is attached hereto.

OR

☒ was filed on **14 August 2000** as PCT International Application Number **PCT/GB00/03117** and filed as **U.S.S. N. 10/049,800** .

☐ and was amended by PCT Article 19 Amendment on _____ (if applicable),

☐ and was amended by PCT Article 34 Amendment on _____ (if applicable).

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

PRIORITY CLAIM

(Check one):

☐ no such applications have been filed.

☒ such applications have been filed as follows

1) **FOREIGN PRIORITY CLAIM:** I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (dd,mm,yyyy)	Priority Not Claimed	Certified Copy Attached Yes	Certified Copy Attached No
9919274.2	**GB**	**17 August 1999 (17.08.1999)**	☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto.

2) **PROVISIONAL PRIORITY CLAIM:** I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Provisional Application Number(s)	Filing Date (dd/mm/yyyy)

☐ Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

3) **U.S./PCT PRIORITY CLAIM:** I hereby claim the benefit under Title 35, United States Code, §120 of any United States application or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (dd/mm/yyyy)	Parent Patent Number *(if applicable)*

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

James E. Cockfield	Reg. No. 19,162	Jeremiah Lynch	Reg. No. 17,425
Thomas V. Smurzynski	Reg. No. 24,798	David J. Rikkers	Reg. No. 43,882
Ralph A. Loren	Reg. No. 29,325	Maria C. Laccotripe	Limited Recognition Under 37 C.F.R. § 10.9(b)
Giulio A. DeConti, Jr.	Reg. No. 31,503		
Ann Lamport Hammitte	Reg. No. 34,858	Debra J. Milasincic	Reg. No. 46,931
Elizabeth A. Hanley	Reg. No. 33,505	David R. Burns	Reg. No. 46,590
Amy E. Mandragouras	Reg. No. 36,207	Sean D. Detweiler	Reg. No. 42,482
Anthony A. Laurentano	Reg. No. 38,220	Cynthia L. Kanik	Reg. No. 37,320
Kevin J. Canning	Reg. No. 35,470	Theodore R. West	Reg. No. 47,202
Jane E. Remillard	Reg. No. 38,872	Shayne Y. Huff	Reg. No. 44,784
DeAnn F. Smith	Reg. No. 36,683	Hathaway P. Russell	Reg. No. 46,488
Peter C. Lauro	Reg. No. 32,360	Daniel B. Ko	Reg. No. 47,332
Jeanne M. DiGiorgio	Reg. No. 41,710	John S. Curran	Reg. No. P50,445
Megan E. Williams	Reg. No. 43,270		

of LAHIVE & COCKFIELD, LLP, 28 State Street, 24th Floor, Boston, Massachusetts 02109, United States of America.

Send Correspondence to:

Anthony A. Laurentano, Lahive & Cockfield, LLP, 28 State Street, Boston, Massachusetts 02109, United States of America

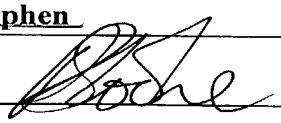
Direct Telephone Calls to: (name and telephone number)

Anthony A. Laurentano, (617) 227-7400

Wherefore I petition that letters patent be granted to me for the invention or discovery described and claimed in the attached specification and claims, and hereby subscribe my name to said specification and claims and to the foregoing declaration, power of attorney, and this petition.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

100

Full name of first inventor **COOKE, Robert Stephen**
Inventor's signature  Date 1/10/02
Residence **Twydale Cottage, The Street, Ewhurst, Surrey GU6 7QA, Great Britian**
Citizenship **Great Britian** GB3
Post Office Address (if different)

200

Full name of second inventor **FRYER, Christopher John**
Inventor's signature C Fryer Date 18/10/02
Residence **31 Barnscroft Way, Droitwich, Worcestershire WR9 0BA, Great Britian**
Citizenship **Great Britian** GB3
Post Office Address (if different)

300

Full name of third inventor **HARWOOD, William Richard**
Inventor's signature Date 13. November 2002 Rosemary S Harwood as Executor
Residence **26 Orchard Way, Hurstpierpoint, Hassocks, West Sussex BN6 9UB, Great Britian**
Citizenship **Great Britian** GB3
Post Office Address (if different)

400

Full name of fourth inventor **PERKINS, Clifford Wiliam**
Inventor's signature Date 26/09/2002
Residence **8 Goodwood Close, Furnace Green, Crawley, West Sussex RH10 6NG, Great Britian**
Citizenship **Great Britian** GB3
Post Office Address (if different)

500

Full name of fifth inventor **STREAMER, Ralph Peter**
Inventor's signature Date 1/10/02
Residence **2 Copse Close, Horsham, West Sussex RH10 5RS, Great Britian**
Citizenship **Great Britian** GB3
Post Office Address (if different)